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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Andreas Menkhoff — Group Art Unit: Not Assigned

Serial No.: Not Assigned — Examiner: Not Assigned

Filed: Herewith — Docket No.: 1406/45

For: INTERPOLATION FILTER AND METHOD FOR DIGITAL INTERPOLATION OF A DIGITAL SIGNAL

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PRELIMINARY AMENDMENT

Honorable Commissioner for Patents
BOX PCT
Washington, D.C. 20231

Dear Sir:

Kindly amend the subject application as follows:

IN THE SPECIFICATION:

Please insert the paragraph heading on page 1 of the English translation of the subject application, line 5, as follows:

--Technical Field --.

Please insert the paragraph heading on page 1 of the English translation of the subject application, before line 10, as follows:

--Background Art --.

Please insert the paragraph heading on page 4 of the English translation of the subject application, before line 30, as follows:

--Summary of the Invention--.

Please insert the paragraph heading on page 9 of the English translation of the subject application, line 35, as follows:

--Brief Description of the Drawings--.

Please insert the paragraph heading on page 11 of the English translation of the subject application, before line 12, as follows:

--Detailed Description of the Invention--.

IN THE CLAIMS:

Please delete the paragraph heading on page 22 of the English translation of the subject application, line 1, and insert in place thereof the paragraph heading as follows:

--CLAIMS--

Please insert the paragraph heading on page 22 of the English translation of the subject application, before claim 1, the following:

-- What is claimed is: --.

Please amend claims 3-9, 11-13, 15, 16, 18-20, and 25 as follows:

3. (Amended) The interpolation filter as claimed in claim 1, wherein connected downstream of the interpolation filter is a highpass filter for compensating the lowpass-type amplitude response.

4. (Amended) The interpolation filter as claimed in claim 1, wherein the group delay τ of the interpolation filter runs in an essentially constant fashion in the useful signal frequency band Δf_{nutz} of the digital input signal.

5. (Amended) The interpolation filter as claimed in claim 1, wherein the digital input signal is an equidistant digital signal with a predetermined clock pulse period T_{in}.

6. (Amended) The interpolation filter as claimed in claim 1, wherein the group delay τ of the interpolation filter can be set inside a clock pulse period T_{in} of the digital input signal.

7. (Amended) The interpolation filter as claimed in claim 1, wherein the ratio of the clock pulse periods of the digital input signal T_{in} and the digital output signal T_{aus} filtered by the interpolation filter can be set.

8. (Amended) The interpolation filter as claimed in claim 3, wherein the interpolation filter and the downstream highpass filter together exhibit a sinc filter characteristic.

9. (Amended) The interpolation filter as claimed in claim 1, wherein a further interpolation filter can be connected upstream of the interpolation filter for the purpose of constricting the useful signal frequency band Δf_{nutz}.

11. (Amended) The interpolation filter as claimed in claim 1, wherein it has:

a filter coefficient generator for generating filter coefficients as a function of a base function BF;

a multiplier for multiplying the digital input signal by the generated filter coefficients, and

an accumulator for accumulating the digital input signal weighted by the multiplication.

12. (Amended) The interpolation filter as claimed in claim 1, defined by a storage device for storing the base function.

13. (Amended) The interpolation filter as claimed in claim 1, defined by a base function generator for generating the base function as a function of fundamental functions.

15. (Amended) The interpolation filter as claimed in claim 1, wherein a controllable switching device is provided for reading out the weighted digital input signal as a digital output signal.

16. (Amended) The interpolation filter as claimed in claim 11, wherein the accumulator consists of an adder and a register whose output is fed back to an input of the adder.

18. (Amended) The method as claimed in claim 17, in which the filter coefficients of the interpolation filter are determined as a function of a base function BF.

19. (Amended) The method as claimed in claim 18, in which the base function BF is stored in a memory.

20. (Amended) The method as claimed in claim 18, in which the base function BF is generated from prescribed fundamental functions GF.

25. (Amended) The method as claimed in claim 18, in which a multiplicity of sets of filter coefficients of the interpolation filter are generated as a function of the base function BF which in each case exhibit in the useful signal frequency band Δf_{nutz} an essentially identical amplitude response and different group delays τ, there subsequently being selected for the purpose of determining the filter coefficients of the interpolation filter that set of filter coefficients whose group delay τ corresponds to the set desired group delay τ_{soll}.

REMARKS

The amendments to the specification as set forth above are intended to clarify and set apart the various sections of the subject application.

The amendments to the claims as set forth above are intended to remove all multiple dependent claims from the subject application and to more particularly point out and distinctly claim the subject invention.

Attached hereto is a marked-up version of the specification and claims 3-9, 11-13, 15, 16, 18-20, and 25, which illustrates all of the changes made to the specification and claims pursuant to 37 CFR §1.121. The attached page is captioned "**Version With Markings To Show Changes Made**". Deleted language is bracketed and added language is underlined.

The Commissioner is hereby authorized to charge any deficiencies or credit any overpayments in connection with the filing of this correspondence to Deposit Account No. **50-0426**.

Respectfully submitted,

JENKINS & WILSON, P.A.

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1406/45 REJ/lsg

Serial No.: Not yet assigned

Version With Markings To Show Changes Made

IN THE SPECIFICATION:

The paragraph heading has been inserted on page 1 of the English translation of the subject application, line 5, as follows:

Technical Field

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Summary of the Invention

The paragraph heading has been inserted on page 9 of the English translation of the subject application, line 35, as follows:

Brief Description of the Drawings

The paragraph heading has been inserted on page 11 of the English translation of the subject application, before line 12, as follows:

Detailed Description of the Invention

IN THE CLAIMS:

The paragraph heading "Patent Claims" on page 22 of the English translation of the subject application has been deleted and the paragraph heading has been inserted in place thereof as follows:

CLAIMS

The paragraph heading has been inserted on page 22 of the English translation of the subject application, before claim 1, as follows:

What is claimed is:

3. (Amended) The interpolation filter as claimed in claim 1 [or 2], wherein connected downstream of the interpolation filter [(5)] is a highpass filter [(9)] for compensating the lowpass-type amplitude response.

4. (Amended) The interpolation filter as claimed in [one of the preceding claims] claim 1, wherein the group delay τ of the interpolation filter [(5)] runs in an essentially constant fashion in the useful signal frequency band Δf_{nutz} of the digital input signal.

5. (Amended) The interpolation filter as claimed in [one of the precedidng claims] claim 1, wherein the digital input signal is an equidistant digital signal with a predetermined clock pulse period T_{in}.

6. (Amended) The interpolation filter as claimed in [one of the preceding claims] claim 1, wherein the group delay τ of the interpolation filter [(5)] can be set inside a clock pulse period T_{in} of the digital input signal.

7. (Amended) The interpolation filter as claimed in [one of the preceding claims] claim 1, wherein the ratio of the clock pulse periods of the digital input signal T_{in} and the digital output signal T_{aus} filtered by the interpolation filter [(5)] can be set.

8. (Amended) The interpolation filter as claimed in claim 3, wherein the interpolation filter [(5)] and the downstream highpass filter [(9)] together exhibit a sinc filter characteristic.

9. (Amended) The interpolation filter as claimed in [one of the preceding claims, characterized in that] claim 1, wherein a further interpolation filter can be connected upstream of the interpolation filter [(5)] for the purpose of constricting the useful signal frequency band Δf_{nutz}.

11. (Amended) The interpolation filter as claimed in [one of the preceding claims] claim 1, wherein it has:

a filter coefficient generator [(15)] for generating filter coefficients as a function of a base function BF;

a multiplier [(13)] for multiplying the digital input signal by the generated filter coefficients, and

an accumulator [(23)] for accumulating the digital input signal weighted by the multiplication.

12. (Amended) The interpolation filter as claimed in [one of the preceding claims] claim 1, defined by a storage device [(20)] for storing the base function.

13. (Amended) The interpolation filter as claimed in [one of the preceding claims 1 to 11] claim 1, defined by a base function generator for generating the base function as a function of fundamental functions.

15. (Amended) The interpolation filter as claimed in [one of the preceding claims] claim 1, wherein a controllable switching device [(28)] is provided for reading out the weighted digital input signal as a digital output signal.

16. (Amended) The interpolation filter as claimed in [one of the preceding claims] claim 11, wherein the accumulator [(23)] consists of an adder [(24)] and a register [(26)] whose output is fed back to an input of the adder [(24)].

18. (Amended) The method as claimed in claim 17, in which the filter coefficients of the interpolation filter [(5)] are determined as a function of a base function BF.

19. (Amended) The method as claimed in [one of the preceding claims 17 or 18] claim 18, in which the base function BF is stored in a memory [(20)].

20. (Amended) The method as claimed in [one of the preceding claims 17 or 18] claim 18, in which the base function BF is generated from prescribed fundamental functions GF.

25. (Amended) The method as claimed in [one of the preceding claims] claim 18, in which a multiplicity of sets of filter coefficients of the interpolation filter [(5)] are generated as a function of the base function BF which in each case exhibit in the useful signal frequency band Δf_{nutz} an essentially identical amplitude response and different group delays τ, there subsequently being selected for the purpose of

determining the filter coefficients of the interpolation filter [(5)] that set of filter coefficients whose group delay τ corresponds to the set desired group delay τ_{soll}.